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## PART I - ADMINISTRATIVE

### Section 1. General administrative information

**Title of project**

Multi-Year Plan Yakima Anadromous Fish Plan

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**BPA project number:** 20526

**Contract renewal date (mm/yyyy):** ☐ Multiple actions?

**Business name of agency, institution or organization requesting funding**

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**Business acronym (if appropriate)** CBFWA

**Proposal contact person or principal investigator:**

**Name** Tom Giese

**Mailing Address**

**City, ST Zip**

**Phone** 503-229-0191

**Fax**

**Email address**

**NPPC Program Measure Number(s) which this project addresses**

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**FWS/NMFS Biological Opinion Number(s) which this project addresses**

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**Other planning document references**

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**Short description**

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**Target species**

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### Section 2. Sorting and evaluation

**Subbasin**

Yakima

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### **Evaluation Process Sort**

<b>CBFWA caucus</b>	<b>Special evaluation process</b>	<b>ISRP project type</b>
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input type="checkbox"/> Multi-year (milestone-based evaluation) <input type="checkbox"/> Watershed project evaluation	<input type="checkbox"/> Watershed councils/model watersheds <input type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input type="checkbox"/> New construction <input type="checkbox"/> Research & monitoring <input type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

### **Section 3. Relationships to other Bonneville projects**

***Umbrella / sub-proposal relationships.*** List umbrella project first.

<b>Project #</b>	<b>Project title/description</b>
20526	Multi-Year Plan Yakima Anadromous Fish Plan
9506404	Coordination, planning, use of new information to implement projects.
8812001	Coordination, planning, use of new information to implement projects.
9067	Coordination, planning, use of new information to implement projects.
9405900	Educational outreach to gain regional support for Objective 1.
8812008	Identify limiting factors, make improvements to migration/prespawn survival
9101	Identify limiting factors, make improvements to migration/prespawn survival
9102	Identify limiting factors, make improvements to migration/prespawn survival
9603501	Identify limiting factors, make improvements to migration/prespawn survival
9704900	Identify limiting factors, make improvements to migration/prespawn survival
9105700	Completion of Phase I construction.
9107500	Completion of Phase I construction.
9200900	O&M for completed improvements.
8506200	Ongoing evaluation of improved screens and ladders.
9705100	Improve adult spawning habitat and juvenile rearing/overwintering survival.
9100	Reopen blocked habitat.
9603301	Build incubation/rearing & 12 satellite facilities for adults/juveniles.
8811500	Planning, design, funding of facilities under #9603301.
9503300	O&M for production facilities.
9701300	O&M for production facilities.
9506402	Research to examine interaction of salmonid species.

9706200	Development & refinement of natural production objectives & strategies.
9105500	Improve supplementation fish.
9506406	Improve supplementation fish.
9603302	Evaluate potential risks of coho reintroductions.
9506300	Overall monitoring and evaluation.
8812005	Overall monitoring and evaluation.
9901200	Coordinate/Facilitate Watershed Project Planning/Implementation

***Other dependent or critically-related projects***

Project #	Project title/description	Nature of relationship

## Section 4. Objectives, tasks and schedules

***Past accomplishments***

Year	Accomplishment	Met biological objectives?

***Objectives and tasks***

Obj 1,2,3	Objective	Task a,b,c	Task
1	Restore Yakima Basin ecosystem integrity/function throughout all life history phases by implementing a "normative" or historical river ecosystem as an overall goal.	a	Increase enforcement and public awareness.
2	Identify limiting factors such as thermal block, predation, water quality/quantity (e.g., lower Yakima River) and improve juvenile/adult migration success and adult pre-spawning survival.	a	Improve flows at dams within the Yakima subbasin.
3	Improve juvenile rearing and over-wintering survival and adult spawning habitat in tributaries.	a	Control sediment and employ predator reduction measures.
		b	Develop side-channel refuges for

			smolts.
4	Re-open blocked habitat, including blocking structures and dewatering.	a	Decrease tributary & mainstem passage mortality for out-migrating smolts through irrigation screening and flow improvements.
		b	Address in-stream flow restrictions on lower Teanaway River drainage.
		c	Incorporate monitoring and evaluation elements aimed at addressing key questions of application.
5	Improve fall chinook spawning success.	a	Conduct supplementation program using locally compatible broodstock.
6	Release additional genetically-appropriate salmon in the subbasin.		

#### ***Objective schedules and costs***

<b>Obj #</b>	<b>Start date mm/yyyy</b>	<b>End date mm/yyyy</b>	<b>Measureable biological objective(s)</b>	<b>Milestone</b>	<b>FY2000 Cost %</b>
				<b>Total</b>	<b>0.00%</b>

#### **Schedule constraints**

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#### **Completion date**

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### **Section 5. Budget**

#### **FY99 project budget (BPA obligated):**

#### ***FY2000 budget by line item***

<b>Item</b>	<b>Note</b>	<b>% of total</b>	<b>FY2000</b>
Personnel		%0	
Fringe benefits		%0	
Supplies, materials, non-expendable property		%0	

Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%0	
Indirect costs		%0	
Subcontractor		%0	
Other		%0	
<b>TOTAL BPA FY2000 BUDGET REQUEST</b>			<b>\$ 0</b>

### ***Cost sharing***

<b>Organization</b>	<b>Item or service provided</b>	<b>% total project cost (incl. BPA)</b>	<b>Amount (\$)</b>
		%0	
		%0	
		%0	
		%0	
<b>Total project cost (including BPA portion)</b>			<b>\$ 0</b>

### ***Outyear costs***

	<b>FY2001</b>	<b>FY02</b>	<b>FY03</b>	<b>FY04</b>
<b>Total budget</b>				

## **Section 6. References**

<b>Watershed?</b>	<b>Reference</b>
<input type="checkbox"/>	Draft Multi-Year Anadromous Fish Plan, CBFWA, February 4, 1998
<input type="checkbox"/>	FY1999 Draft Annual Implementation Work Plan, Vol. 1 Tab. 5, CBFWA May 13, 1998
<input type="checkbox"/>	
<input type="checkbox"/>	

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## **PART II - NARRATIVE**

### **Section 7. Abstract**

(Replace this text with your response in paragraph form)

## **Section 8. Project description**

### **a. Technical and/or scientific background**

(Replace this text with your response in paragraph form)

### **b. Rationale and significance to Regional Programs**

The Yakima River Subbasin in south central Washington covers about 6,155 square miles around the city of Yakima. The Yakima River originates near the crest of the Cascade Range above Keechelus Lake and flows 214 miles southeast to the Columbia River. Topography of the subbasin is characterized by a series of long ridges that extend eastward from the Cascades and encircle flat valley areas. Six major reservoirs are located in the subbasin (Keechelus, Kachess, Cle Elum, Rimrock, Bumping, and Clear Lake). Six major diversion dams are on the mainstem Yakima (Easton, Roza, Wapato, Sunnyside, Prosser, and Horn Rapids) and two are on the Naches (Wapatox and Naches Cowiche).

The Yakama Indian Reservation is located in the southwest corner of the subbasin just south of the city of Yakima. Patterns of land ownership within the subbasin are complex: approximately 32 percent is private; 30 percent is tribal; 28 percent federal; and 10 percent state. The predominant types of land use are irrigated agriculture, urbanization, timber harvesting and grazing. Although the area affected by timber harvesting and grazing is roughly five times the area affected by agriculture and urbanization, the intensity of activity makes agriculture and urbanization of primary importance to water quality.

The indigenous anadromous fish species most actively targeted for management in the Yakima River Subbasin are spring and fall chinook, coho, and summer steelhead. Summer chinook and sockeye are extirpated, and little is currently known about Pacific lamprey status. The goal for these species is to restore sustainable, naturally producing populations to support tribal and non-tribal harvest and cultural and economic practices while protecting the biological integrity and the genetic diversity of the watershed.

Intensive agriculture (irrigation diversions and return flows and grazing) has caused widespread habitat degradation. Resource problems include low flows at diversions, water quality degradation and pesticides, illegal harvest and harassment that reduces adult migration and pre-spawning survival. Low flows, high temperatures and sedimentation reduce fall chinook spawning success. Sediment, predators and lack of side-channel refuges limit juvenile rearing and over-wintering survival. Sediment also limits egg-to-fry emergence survival for all species of salmonids in virtually all reaches of the Yakima Basin. Low flows and inadequate diversion screening reduces juvenile migration survival. Low flows and other barriers have reduced the habitat formerly accessible to salmon. Other problems leading to ecosystem degradation which limit production include: mining waste disposal; grazing; residential development; conversion of land-use; inadequate flood studies, stormwater and riparian management; inadequate enforcement of existing laws regulating shoreline management and development.

These problems have caused major habitat fragmentation and resulting poor connectivity. Combined with out-of-subbasin problems (e.g., Columbia mainstem passage), these problems have led to the extirpation of summer chinook, sockeye and coho, and reduced populations of spring and fall chinook and summer steelhead. This has caused under-seeded habitat, greatly reduced production and loss of harvest opportunities.

**c. Relationships to other projects**

Specific actions (projects) which implement these strategies include: continuing efforts to negotiate agreements with BOR and PPL to subordinate power generation to instream fish needs. Coordination, planning, and using new information to adaptively implement projects is covered by projects #9506404, #8812001, and #9067. Project #9405900 provides educational outreach in an effective way to gain regional support for Objective 1.

Several projects are most critical to identify limiting factors and implementing improvements to migration success and pre-spawning survival, including projects #8812008, 9101, 9102, 9603501, and 9704900. Since about FY 1989, BPA and BOR completed a multi-million dollar program to improve the major irrigation diversions on the Yakima/Naches mainstem by building new screens and ladders. Phase II involves improvements to 60 smaller diversions mostly on tributaries and is about 3/4 completed. Current efforts include completion of Phase II construction (9105700 & 9107500); O/M for completed improvements (9200900); and on-going evaluation of improved screens/ladders (#8506200). Improvements to adult spawning habitat in tributaries and juvenile rearing and over-wintering survival are funded under project #9705100; and re-opening blocked habitat is recommended for funding under project #9100.

Major supplementation activities are under way in the Yakima subbasin, funded under project #9603301. Two central incubation/rearing facilities are nearing completion and twelve satellite facilities are under construction or planned for adult collection/holding and juvenile acclimation/release. Planning, design and construction funding is nearing completion (#8811500). Projects #9503300 and 9701300 provide O&M for production facilities.

Several projects implement additional supplementation actions, including research projects that examine the interaction of salmonid species (#9506402); development and refinement of natural production objectives and strategies (#9706200); and improvements in supplementation fish (#9105500, #9506406). Project #9603302 evaluates the potential risks of coho reintroductions. Overall monitoring and evaluation occurs under projects #9506300 and #8812005.

Habitat enhancement planning and implementation have been funded under BPA projects #9603500, 9608200, 9704700 and 9705300. Research and planning was undertaken starting in FY 1982 for the supplementation program to increase local stocks. Much has been completed, including detailed planning/feasibility studies (#8713500, 8812000, 8908200, 9005800, 9506405) spawning population (#8201600, 8812007) and genetic inventories (#9506403). Development of a disease-free sockeye broodstock was funded under #8604500; and spring chinook life history studies (#9202200, 8201600, 8812000, 8908900).

**d. Project history** (for ongoing projects)

(Replace this text with your response in paragraph form)

**e. Proposal objectives**

In order to address problems the anadromous fish face in the Yakima subbasin, the co-managers have adopted the following outcome-based objectives: 1) restore Yakima Basin ecosystem integrity/function throughout all life history phases by implementing a “normative” or historical river ecosystem as an overall goal; 2) identify the limiting factors such as thermal block, predation, water quality/quantity (e.g., lower Yakima River) and improve juvenile/adult migration success and adult pre-spawning survival; 3) improve juvenile rearing and over-wintering survival and adult spawning habitat in tributaries; 4) re-open blocked habitat, including blocking structures and dewatering; 5) improve fall chinook spawning success; and, 6) release additional genetically-appropriate salmon in the subbasin.

Several strategies have been identified to achieve these objectives including: reducing adult passage and pre-spawning mortalities by improving flows at the dams within the Yakima; increasing enforcement and public awareness; increasing juvenile rearing survivals through sediment control and predator reduction measures; enhancing over-wintering survival through the development of side-channel “refuges” for smolts; decreasing tributary and Yakima mainstem passage mortality for out-migrating smolts through a combination of irrigation screening and flow improvements; conducting a major experimental supplementation program designed to address genetic risks by using locally compatible broodstock; increasing access to potentially productive habitat (in the Teanaway River tributary would be accomplished by addressing in-stream flow restrictions on the lower section of that drainage) within the drainage; and incorporating monitoring and evaluation elements aimed at addressing key questions of application.

**f. Methods**

(Replace this text with your response in paragraph form)

**g. Facilities and equipment**

(Replace this text with your response in paragraph form)

**h. Budget**

(Replace this text with your response in paragraph form)

**Section 9. Key personnel**

(Replace this text with your response in paragraph form)

## **Section 10. Information/technology transfer**

(Replace this text with your response in paragraph form)

**Congratulations!**